TYAN GT24

B7016

Service Engineer's Manual

PREFACE

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Version 1.01a

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Operation is subject to the following conditions:

1) This device may not cause harmful interference;

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

   – Reorient or relocate the receiving antenna.
   – Increase the separation between the equipment and the receiver.
   – Plug the equipment into an outlet on a circuit different from that of the receiver.

   Consult the dealer on an experienced radio/television technician for help.

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This apparatus complies with the Class A limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe A d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark)
This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. There will be danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulatio--ns.

About this Manual

This manual provides you with instructions on installing your TYAN GT24-B7016. This Manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts:

Chapter1: Provides an introduction to the TYAN GT24-B7016 barebones, standard parts list, describes the external components, gives a table of key components, and provides block diagram of the system.

Chapter2: Covers procedures on installing the CPU, memory modules and hard drives.

Chapter3: Covers removal and replacement procedures for pre-installed components.

Appendix: List the cable connection and FRU part tables for reference of system setup, and technical support in case a problem arises with your system.

For information on the motherboard, please refer to the attached motherboard user's manual. You can find the detailed description about jumper and BIOS settings from the motherboard manual.

SAFETY INFORMATION

Before installing and using TYAN GT24-B7016, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the power company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If you outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

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Chapter 1: Overview

1.1 About the TYAN GT24-B7016

Congratulations on your purchase of the TYAN® GT24-B7016, a highly optimized rack-mountable barebone system. GT24-B7016 is designed to support up to two Intel® "Nehalem-EP processors and up to 144GB DDR3-800/1066/1333 memory, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, GT24-B7016 server system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, and lightning-fast PCI-E bus implementtation.GT24-B7016 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® is also proud to deliver GT24-B7016 in flavor while supporting up to four hot-swap hard drives and one slim SATA DVD ROM. GT24-B7016 uses TYAN®'s latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides GT24-B7016 the power and flexibility to meet the needs of nowadays server application.

1.2 Product Models

Model	HDD Bays	Power supply
B7016G24W4H	Hot-swap, 4HDDs	600W single
B7016G24V4H	Hot-swap, 4HDDs	600W single

1.3 Features

TYAN GT24-B7016 (B7016G24W4H/B7016G24V4H)

System	Form Factor	1U Rackmount
	Chassis Name	GT24
	Dimension (D x W x H)	25.4" x 17.2" x 1.72" (645 x 436 x 43.6mm)
	Motherboard	S7016WGM3NR/S7016GM3NR
	Gross Weight	16 kg
Front Panel	Buttons	(1) RST / (1) NMI / (1) ID / (1) PWR w/ LED
	LEDs	(1) ID / (1) Warning / (3) LAN / (1) BMC
	I/O Ports	(2) USB ports
External Drive Bay	Type / Q'ty	3.5" Hot-Swap / (4)
	Supported HDD Interface	SAS 3.0Gb/s / SATA-II 3.0Gb/s
System Cooling Configuration	FAN	(5) 4cm fans
Peripherals	Type of ODD / Q'ty	Slim-type SATA DVD-ROM / (1)
Power Supply	Type	EPS1U
	Input Range	Full-range AC(100-240V)
	Frequency	47~63 Hertz
	Output Watts	600 Watts
	Efficiency	PFC / 80-plus
Processor	Supported CPU Series	Intel Xeon Processor 5500 Series
	Socket Type / Q'ty	LGA1366 / (2)
	Thermal Design Power (TDP) wattage	95W
	System Bus	Up to 4.8/ 5.86/ 6.4GT/s with Intel QuickPath Interconnect (QPI) support

Chipset	**IOH / ICH**		Intel 5520 / ICH10R
Memory	**Supported DIMM Qty**		(18) DIMM sockets
	DIMM Type / Speed		DDR3 800/1066/1333 RDIMM/UDIMM
	Capacity		Up to 144GB at launch w/ dual rank RDIMMs
	Memory channel		6 Channels (3 Channels per CPU)
	Memory voltage		1.5V
Expansion Slots	**PCI-E**		(1) PCI-E Gen.2 x8 slot / (1) PCI-E Gen.2 x16 slot (w/ x8 link)
	Pre-install TYAN Riser Card		M2083-RS, PCI-E x16 1U riser card (left) / M2081-2, PCI-E x8 1U riser card (right)
LAN	**Port Q'ty**		(3)
	Controller		Intel 82574L / Intel 82576EB
Storage	**SAS (optional)**	**Controller**	LSI SAS1068E
		Speed	3.0 Gb/s
		RAID	RAID 0/1/1E (LSI Integrated RAID)
	SATA	**Controller**	ICH10R
		Speed	3.0 Gb/s
		RAID	RAID 0/1/10/5 (Intel Matrix RAID)
Graphic	**Connector type**		D-Sub 15-pin
	Resolution		1600x1200@75Hz
	Chipset		ServerEngines Pilot2
I/O Ports	**USB**		(4) ports (2 at front, 2 at rear)
	COM		(1) DB-9 COM port
	PS/2		(1) PS/2 connector (for Keyboard and Mouse)
	VGA		(1) D-Sub 15-pin port
	RJ-45		(3) ports
System Monitoring	**Chipset**		Winbond W83793G
	Voltage		Monitors voltage for CPU, memory, chipset & power supply

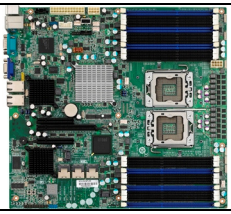
	Temperature	Monitors temperature for CPU & system environment
	LED	Fan fail LED indicator / Over temperature warning indicator
	Others	Chassis intrusion detection / Watchdog timer support
Server Management	**Onboard Chipset**	Onboard ServerEngines Pilot2
	ServerEngines Pilot2 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / Supports storage over IP and remote platform-flash/ BIOS update / Hardware-based security engine for SSL acceleration
	ServerEngines Pilot2 iKVM Feature	Highest resolution secured KVM over IP / Dual 10/100/1000 Mb/s MAC interfaces
BIOS	**Brand / ROM size**	AMI / 4MB
	Feature	Plug and Play (PnP) /PCI2.3 /WfM2.0 /SMBIOS2.3 /PXE boot / ACPI 2.0 power management /Power on mode after power recovery / User-configurable H/W monitoring / Auto-configurable of hard disk types / Multiple boot options
Operating System	**OS supported list**	Please refer to our OS supported list.
Regulation	**FCC (DoC)**	Class A
	CE (DoC)	Yes
Operating Environment	**Operating Temp.**	10° C ~ 35° C (50° F~ 95° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity	90%, non-condensing at 35° C
RoHS	**RoHS 6/6 Complaint**	Yes
Package Contains	**Barebone**	(1) GT24B7016 Barebone
	Manual	(1) Quick Ref. Guide / (1) MB User's manual + (1) BB User's manual
	Installation CD	(1) TYAN installation CD

Heatsink / Cooler	(2) CHSK-0380, LGA1366 CPU heatsinks for S7016
Rail kit	(1) CRAL-0031, sliding rail kit for KGT24
Mounting Ear	(1) CEAR-0050, mounting ear kit for GT20/ GT24
Others	(1) HDD screw pack
Power Cord	(1) CCBL-0310, US type power cord / (1) CCBL-0300, EU type power cord

1.4 Standard Parts List

This section describes GT24-B7016 package contents and accessories. Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

1.4.1 Box Contents

Component	Description
	1U chassis,(4) hot swap HDDbays
	TYAN® S7016 system board (pre-installed)
	600W single Power Supply
	(5) System FAN
	M1008： LED control board (pre-installed)
	M1232 HDD Board
	M2083-RS PCI-E riser card
	M2081-2 PCI-E riser card

1.4.2 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN®'s website for service: http://www.tyan.com
The web site also provides information of other TYAN® products, as well as FAQs, compatibility lists, BIOS settings, etc.

1 x TYAN® Motherboard Drive CD

2 x Heatsinks

HDD Screws

Power Cables
Left to right: Europe, US

Mounting Ears & Screws

Barebone Manual & Mainboard Manual

Rail Kit

Rail with Bracket x 2

Screw Pack

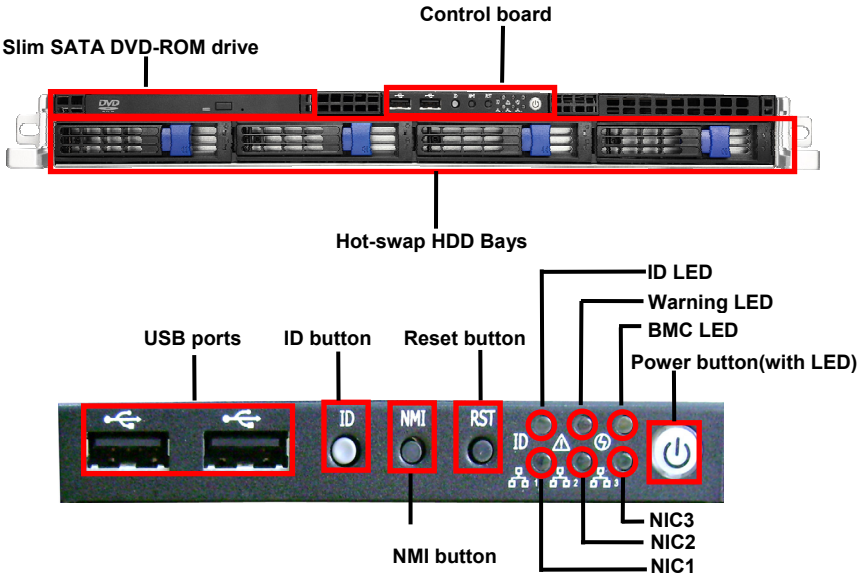
1.5 Optional Parts

Item	Model Number	Picture	Quantity	Description
Chassis Front-Bezel	CFBZ-0070		1	Front Bezel for GT series 1U chassis

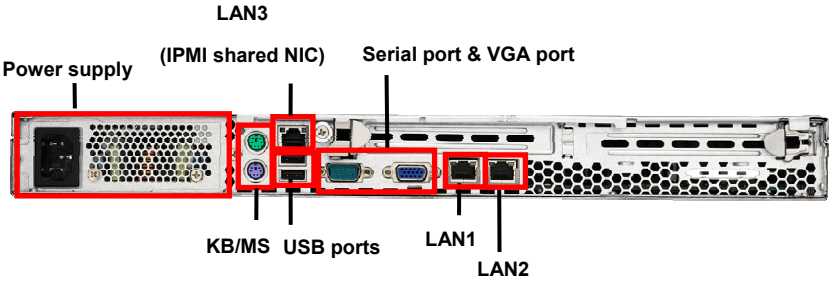
1.6 About the Product

The following views show you the product.

1.6.1 System Front View



1.6.2 System Rear View



1.6.3 LED Definitions

Front Panel

LED	State	Color	Description
Power LED	On	Green	System is turned on
	On	Green	System is under S1 or S3 state
	Off	Off	Power off
NIC1	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
NIC2	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
NIC3	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
Warning LED	On	Red	Fan fail /Over temperature /Over voltage
	Off	Off	No failure
ID LED	On	Blue	System identified
	Off	Off	System not identified
BMC LED	On	Amber	PSU fail
	Blinking	Amber	PSU alert
	Off	Off	No failure

Rear I/O

LAN1/LAN2

LED	State	Color	Description
RJ-45 Linkage/ Activity(left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Off	Off	No LAN linked
RJ-45 Linkage/ Activity(Right)	On	Amber	1000Mb linked/activity
	On	Green	100Mb linked/activity
	Off	Off	10Mb mode or No LAN linked

NOTE: "Left" and "Right" are viewed from the rear panel.

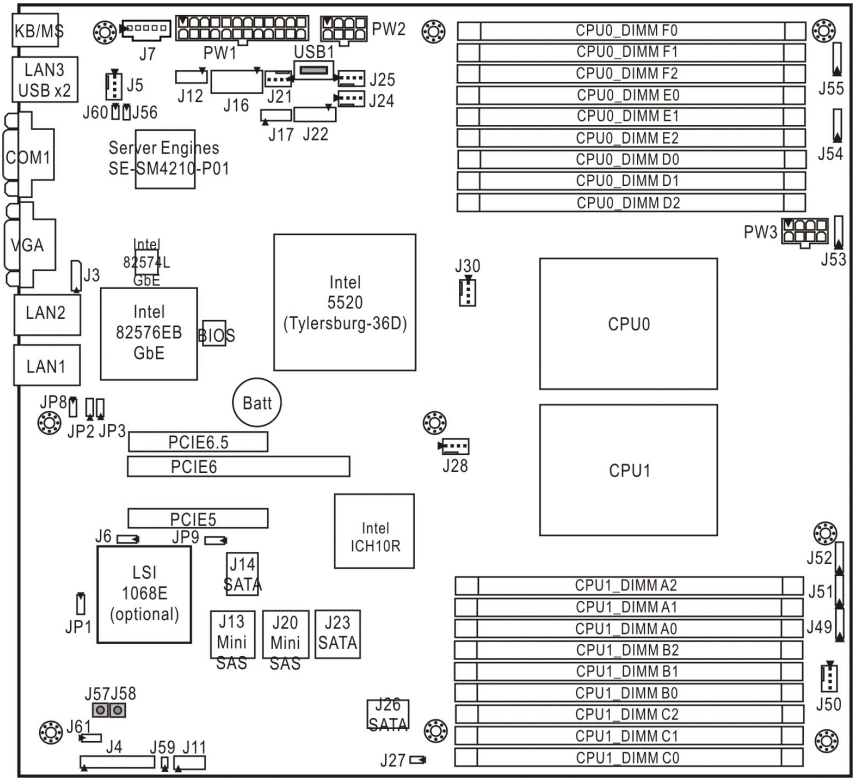
LAN3

LED	State	Color	Description
RJ-45 Linkage/ Activity(left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Off	Off	No LAN linked
RJ-45 Linkage/ Activity(Right)	On	Amber	1000Mb linked/activity
	On	Green	100Mb linked/activity
	Off	Off	10Mb mode or No LAN linked

ID LED

LED	State	Color	Description
ID LED	On	Blue	System identified
	Off	Off	System not identified

1.6.4 Motherboard (S7016) Layout



The diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram.

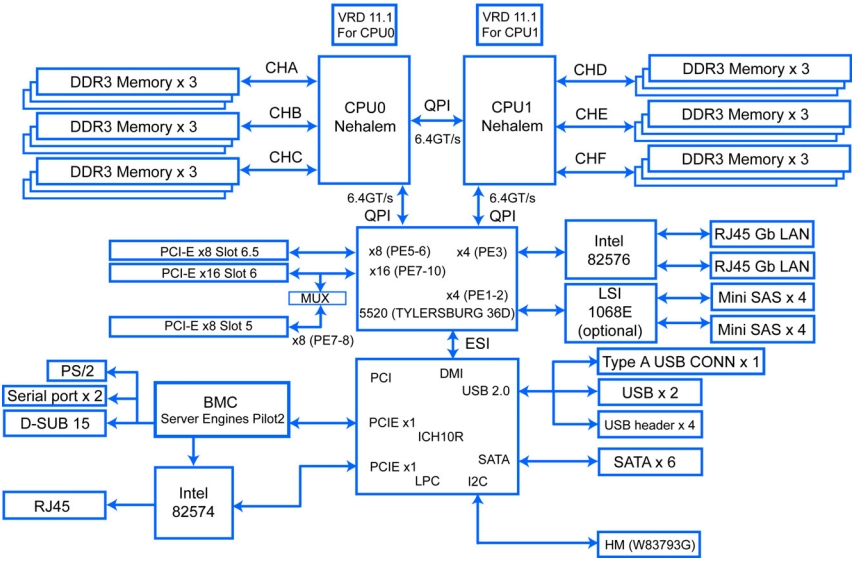
1.6.5 Jumpers & Connectors

Jumper/Connector	Function
J3	IPMB Connector
J4	Front Panel Connector
J7	PSMI Connector
J11/J12	USB Front Panel Header (blue)
J16	COM2 Connector
J17	CPLD JTAG Header
J22	ICH SGPIO Header
J27	Chassis Intrusion Header
J49/J51/J52/J53/J54/J55	8-pin 4056 Fan Connector
J5/J21/J24/J25/J28/J30/J50	4-pin Fan Connector
J57	Power Switch
J58	Reset Switch
J59	LAN3 LED Header
USB1	Type-A USB Connector
J6	SAS Enable/Disable Jumper
J56	BMC Enable/Disable Jumper
J60	BMC Update Jumper
J61	Flash Manageability Engine (ME) Jumper
JP1	Clear CMOS Jumper
JP2/JP3	COM2 Switch Jumper
JP8	BMC Flash Jumper
JP9	PCI-E x8/x16 select Jumper

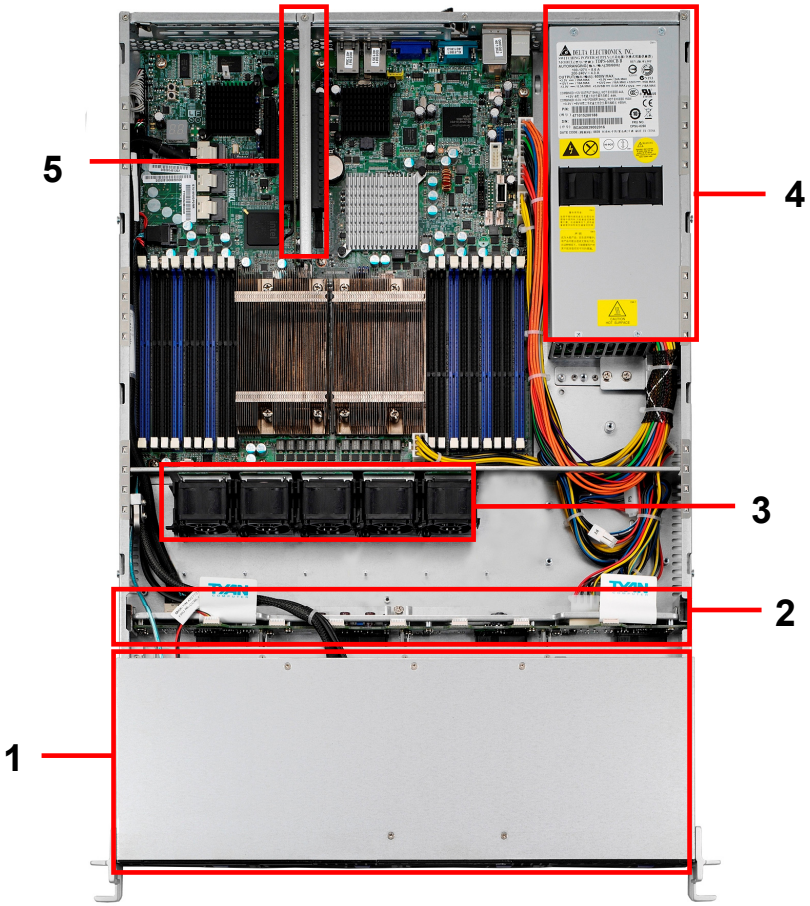
Jumper Legend

	OPEN - Jumper OFF	**Without jumper cover**
	CLOSED - Jumper ON	**With jumper cover**

1.6.6 System Block Diagram



1.6.7 Internal View



1	HDD Cage
2	M1232 HDD Board
3	System Fan Unit
4	Power Supply
5	PCI-E Riser Card Assembly

Chapter 2: Setting Up

2.0.1 Before you Begin

This chapter explains how to install the CPUs, CPU heatsinks, memory modules, and hard drives. Instructions on inserting add on cards are also given.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected with your hands. It is recommended that you do not use pliers to remove connectors as it may damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to GT24-B7016 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Note:

All connectors are keyed to only attach one way.

All use the correct screw size as indicated in the procedures.

2.1 Installing Motherboard Components

This section describes how to install components on to the motherboa-rd, including CPUs, memory modules and add on cards.

2.1.1 Removing the Chassis Cover

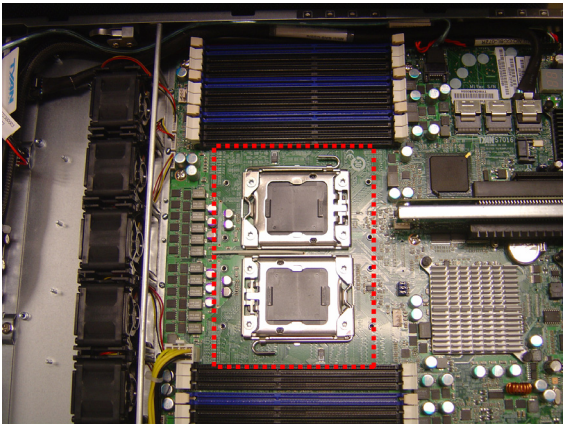
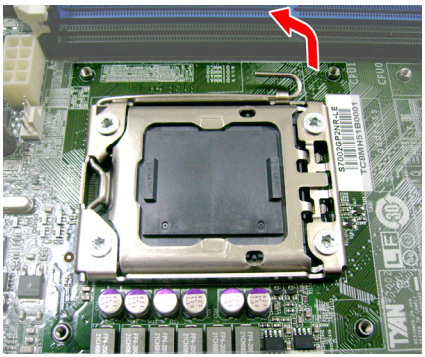
Follow these instructions to remove GT24-B7016 chassis cover.

1. Unscrew the rear top cover on the back side as shown in the small diagram.

2. Slide the rear top cover out.

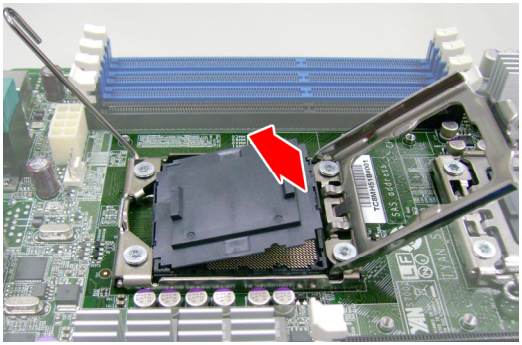
2.1.2 Installing the CPU and Heatsink

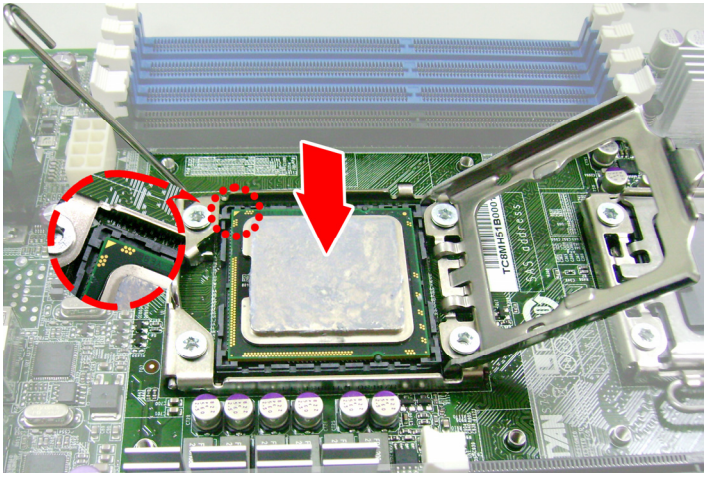
Follow the steps below on installing CPUs and CPU heatsinks.

1. Locate the CPU socket.	
	2. Press the lever and unlock the CPU socket.

3. Lift the CPU protection cap up and lay the CPU into the socket(A), ensuring pin1 is correctly located(B);

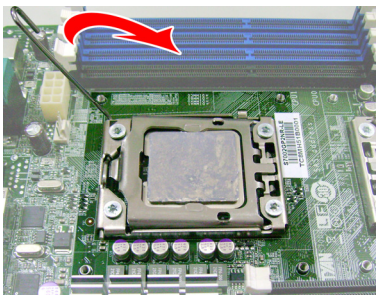
A

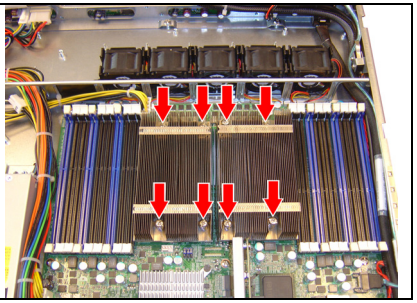




B

4. Close the socket cover and press the CPU lever down to secure the CPU;



5. Place the heatsink on top of the CPU and secure it with 8 screws.	

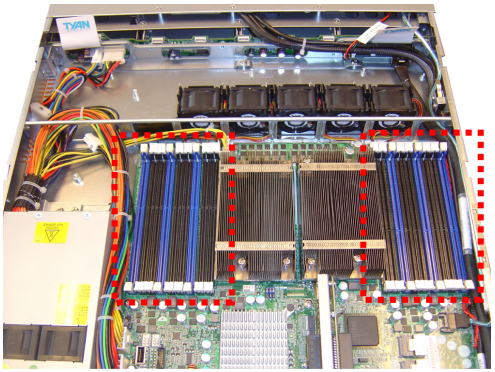
Note:

The system supports two CPUs. For CPU sequence please refer to Chapter 1.6.4.

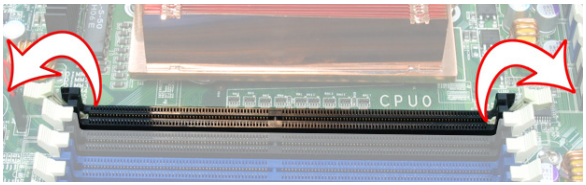
2.1.3 Installing the Memory

Follow these instructions to install the memory modules onto the motherboard.

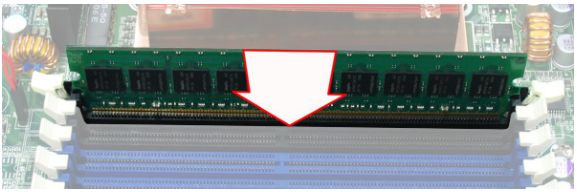
1. Locate the memory slots on the motherboard.

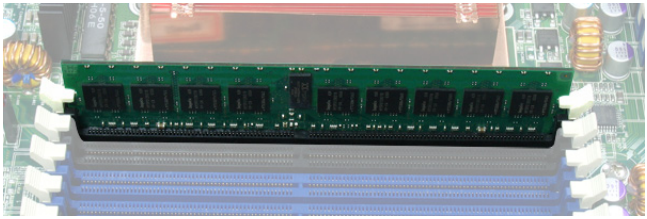


2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.





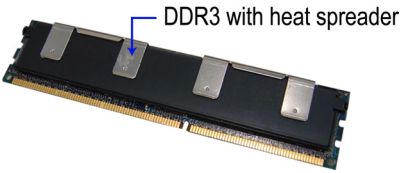
Note:

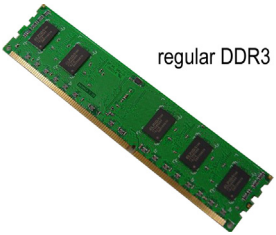
1). **For the DIMM number please refer to the motherboard placement in "2.3 - Board Parts, Jumpers and Connectors" for memory installation.**

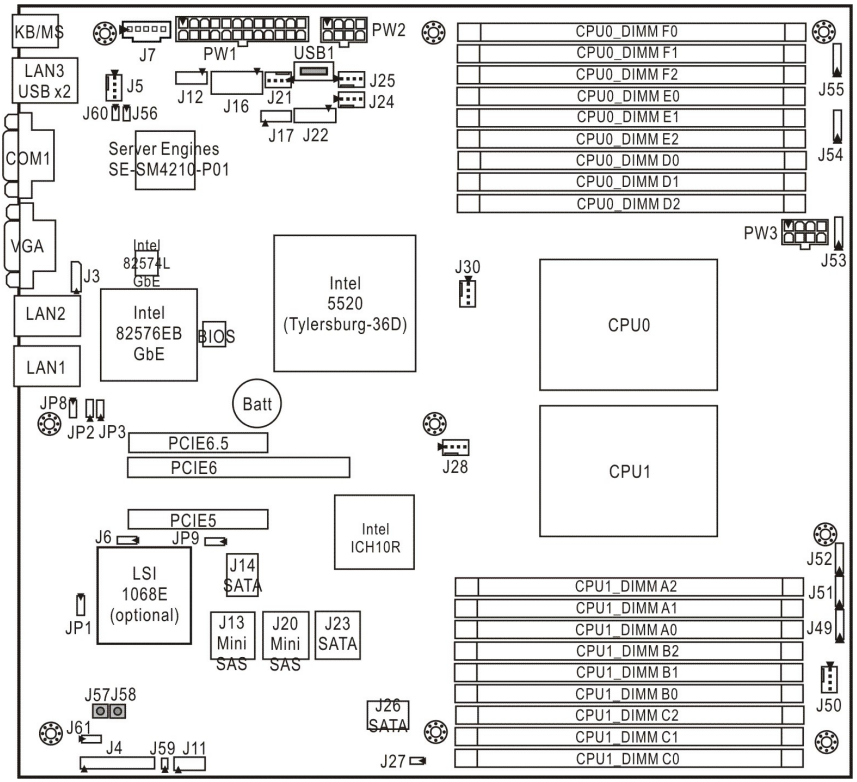
2). **Refer to the memory population option table for recommended memory installation instruction.**

Memory Population Option Table

The following pictures show common types of DDR3 memory modules.







CPU0		CPU1	
Channel D	DIMM D0, D1 & D2	Channel A	DIMM A0, A1 & A2
Channel E	DIMM E0, E1 & E2	Channel B	DIMM B0, B1 & B2
Channel F	DIMM F0, F1 & F2	Channel C	DIMM C0, C1 & C2

The following table outlines the suggested rules for populating memory.

For 3 slots per channel			
RDIMM	**DIMM2**	**DIMM1**	**DIMM0**
Single Rank			x
		x	x
	x	x	x
Dual Rank			x
		x	x
	x	x	x
Quad Rank			x
		x	x
UDIMM	**DIMM2**	**DIMM1**	**DIMM0**
Single Rank			x
		x	x
Dual Rank			x
		x	x
DIMM with heat spreader	**DIMM2**	**DIMM1**	**DIMM0**
			x
		x	x
	x	x	x

Note:

1). "X" indicates a populated DIMM slot.

2). If installing only **one** processor, you can choose either CPU0 or CPU1.

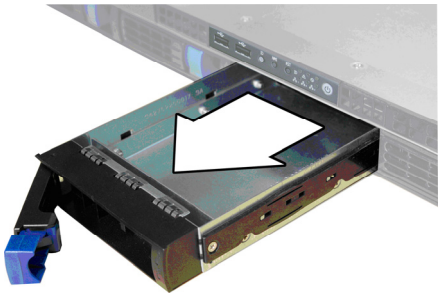
3). For **two slots per channel** configuration, it requires population to start with the DIMM slots furthest away from the processor.

2.1.4 Installing Hard Drives

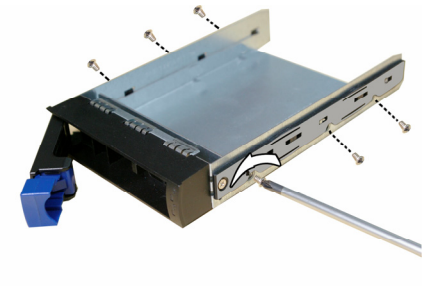
The GT24-B7016 supports four 3.5” hard drives. Follow these instructions to install a hard drive.

1. Press the locking lever latch and pull the locking lever open.

2. Slide the HDD tray out.

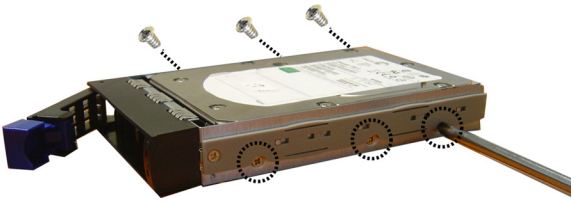


3. Remove the 6 screws.

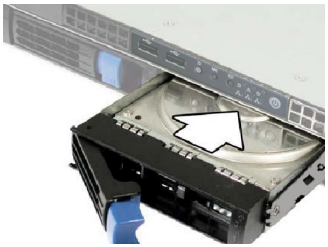


4. Place a hard drive into the drive tray.

5. Use 6 HDD screws to secure the HDD.



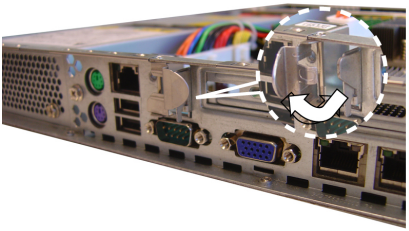
6. Reinsert the HDD tray into the chassis and press the locking lever to secure the tray.



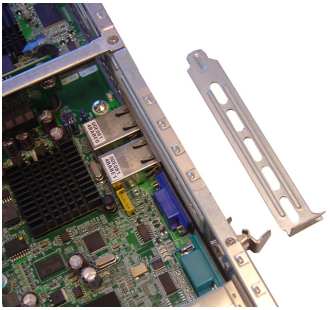
2.1.5 Installing the PCI-E Cards

The GT24-B7016 supports two PCI-E expansion slots. Follow these instructions to install PCI-E cards.

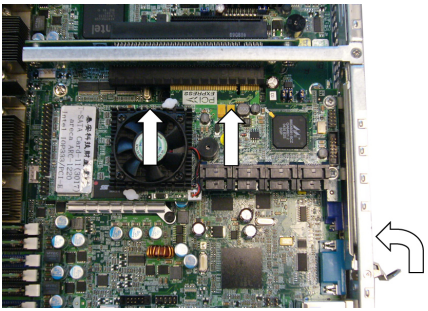
1. Pull open the tab of PCI-E slot on the rear panel in the direction as shown to release the PCI bracket.



2. Take off the PCI bracket.

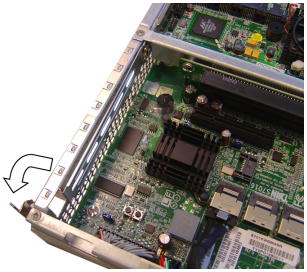


3. Insert the PCI-E card in the direction of arrow as shown. Close the tab of PCI-E slot to secure PCI-E card.

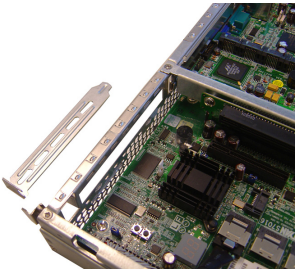


4. Repeat the same procedures to insert the second PCI-E card into the expansion slot.

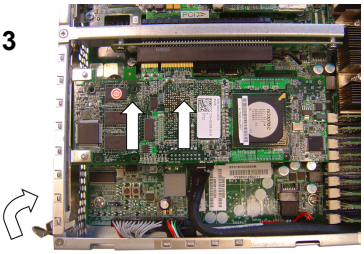
1



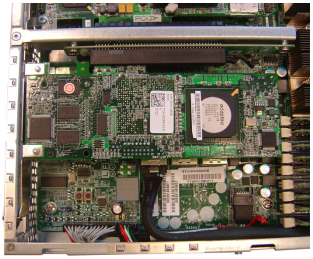
2



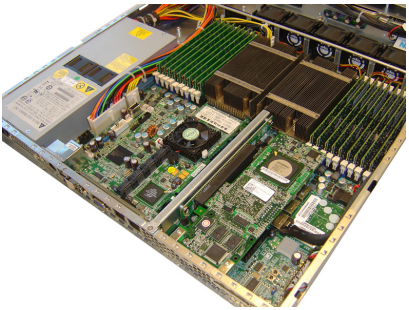
3



4



5. The installation of two PCI-E expansion cards are now complete.



2.2 Rack Mounting

After installing the necessary components, the TYAN GT24-B7016 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears (including screws) x 2

Screws Kit x 1

Mounting Brackets x 4

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the TYAN GT24-B7016 into an industry standard 19" rack.

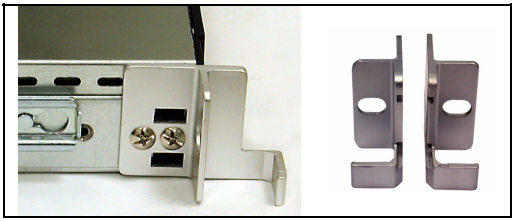
NOTE: Before mounting the TYAN GT24-B7016 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

Screws List

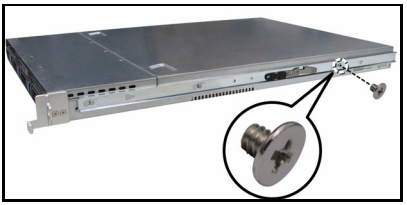
No.	Screw	Size	Quantity
A		M4-4L	18
B		M5-8L	10
C		M5-15	4

2.2.2 Installing the inner Rails to the Chassis

1. Screw the mounting ear to each side of TYAN GT24-B7016 as shown using 2 screws from the supplied screws kit.

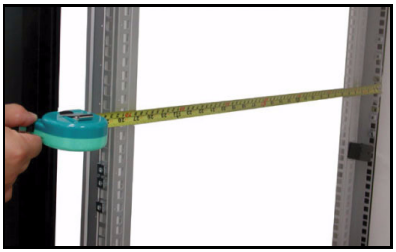


2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 1 M4-4L(A) screw for each side.

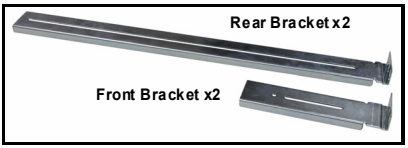


2.2.3 Installing the Outer Rails to the Rack

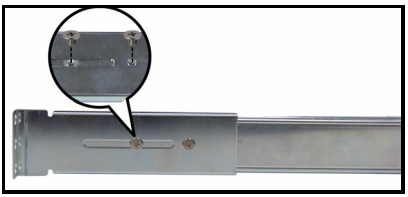
1. Measure the distance between inner side of the front and rear mounting brackets in the rack.



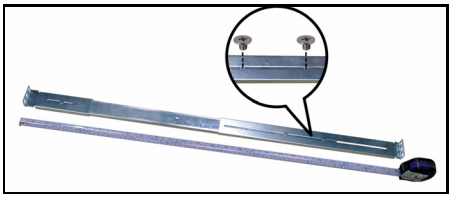
2. Locate the front and rear brackets.



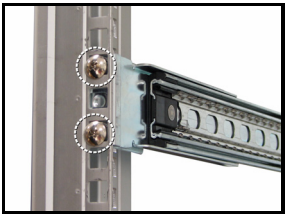
3. Secure the front bracket to outer rail with 2 M4-4L(A) screws.



4. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(A) screws.



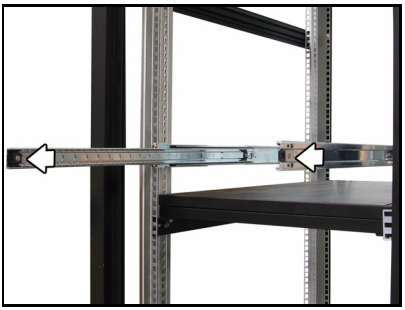
5. Secure the outer rail to the rack using 2 brackets and 4 M5-8L(B) screws for each side. Secure the mounting brackets from inside, not outside, of the rack.



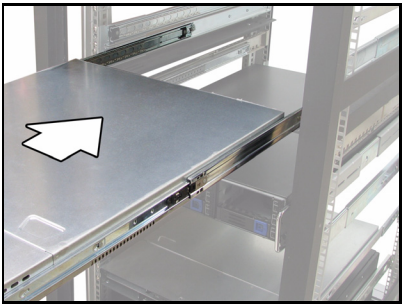
Mounting Bracket

2.2.4 Rack mounting the Server

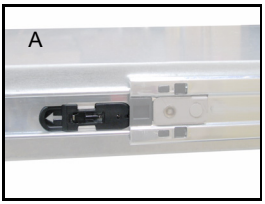
3. Draw out the middle rail to the latch position.

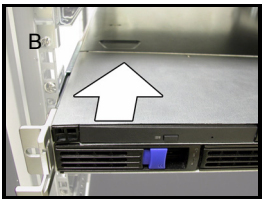


4. Lift the chassis and then insert the inner slide rails into the middle rails.

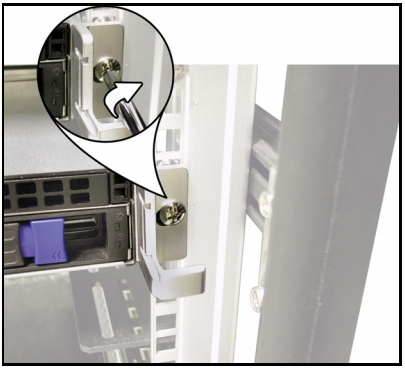


5. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B)





6. Secure the mounting ears of chassis to the rack with 2 M5-15L(C) screws.



Note:

To avoid injury, it is strongly recommended that two people lift the TYAN GT24-B7016 into the place while a third person screws it to the rack.

NOTE

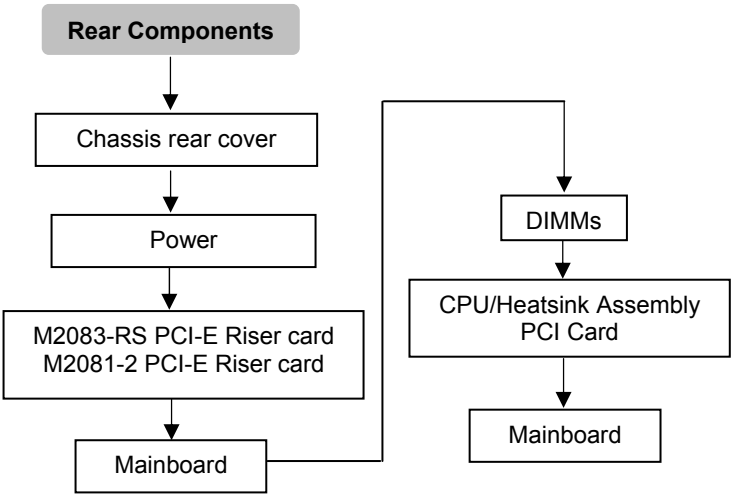
Chapter 3: Replacing Pre-Installed Components

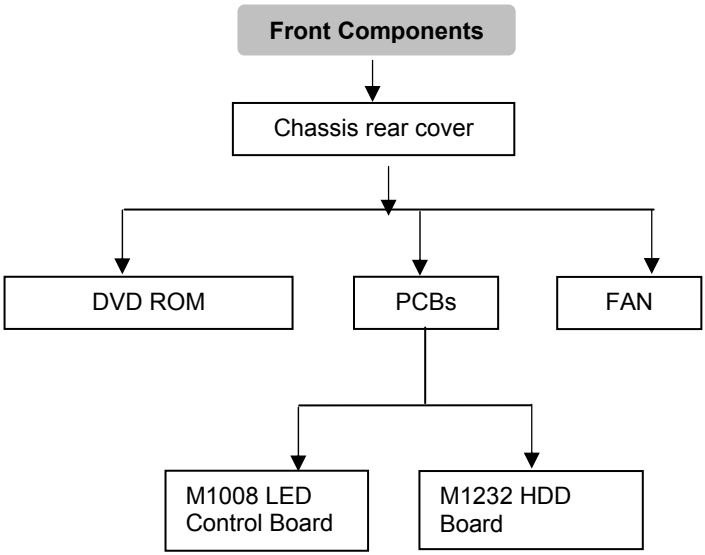
3.1 Introduction

This chapter explains how to replace the pre-installed components, including the Motherboard, M1008 LED control board, M1232 HDD board, M2083-RS/M2081-2 PCI-E Riser card, System fan, ODD drive, Power supply unit etc.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.




Front Components
Chassis rear cover
DVD ROM
PCBs
FAN
M1008 LED Control Board
M1232 HDD Board

3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover. Follow **Chapter 2.1.1** to remove the cover of the GT24-B7016.

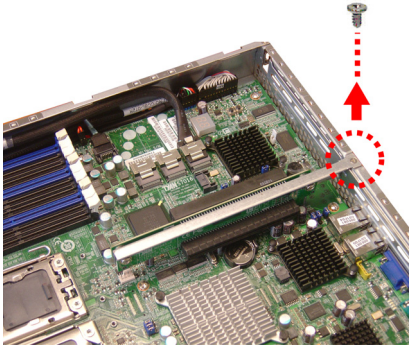
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

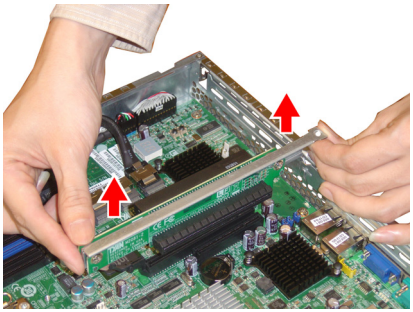
3.4.1 Replacing Expansion Card

The GT24-B7016 has **one preinstalled PCI-E×16** riser card, Follow the instructions below to disassemble the M2083-RS PCI-E riser card.

1. Locate the riser card on the motherboard, unscrew the bracket from the slot.

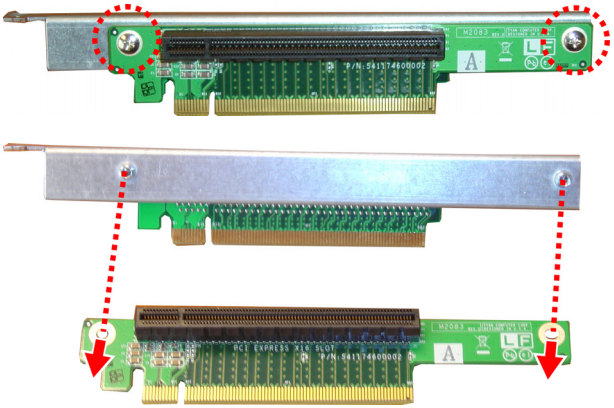


2. Unscrew the bracket and pull it up from the slot in the direction as shown.

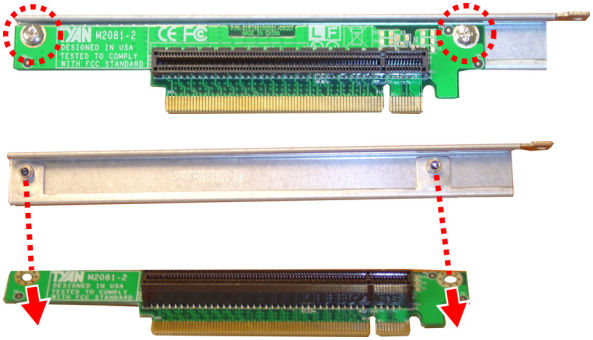


3. Unscrew the cards from the bracket.

a. remove Card M2083



b. remove Card M2081-2

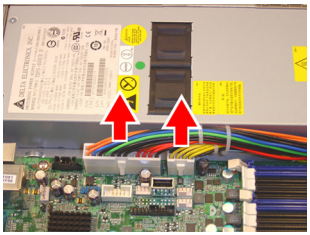
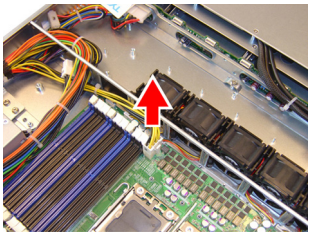


4. Install a new riser card onto the bracket following the procedures mentioned earlier in reverse order.

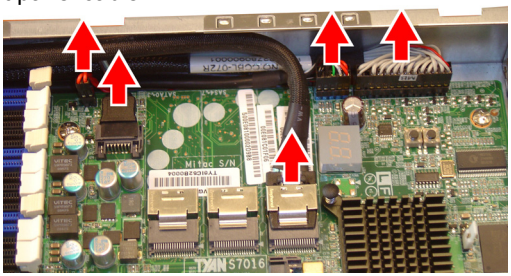
3.4.2 Disconnecting All Motherboard Cables

Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cables.

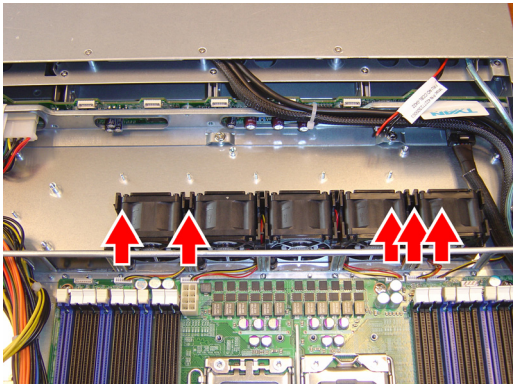
1. Disconnect all the power cable.

2. Disconnect SATA DVD cable, Mini SAS cable, USB cable and front panel cable.



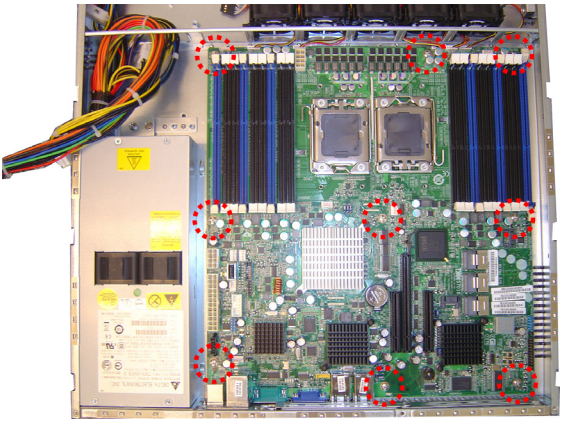
3. Disconnect fan cables.



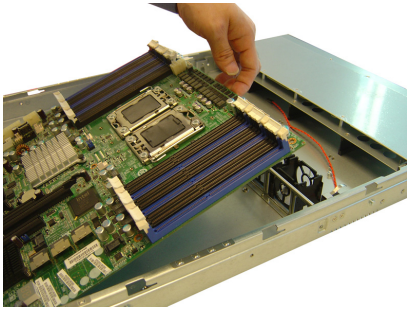
3.4.3 Removing the Motherboard

After removing all of the aforementioned cables, follow the instructions below to remove the motherboard from the chassis.

1. Remove the heatsinks and processors if installed.
2. Remove the nine screws securing the motherboard to the chassis.



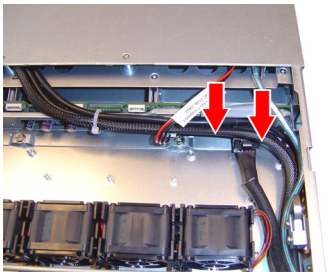
3. Carefully lift the motherboard from the chassis.



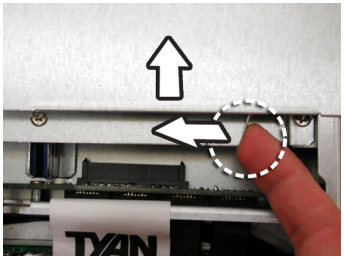
3.5 Replacing the Slim DVD-ROM

Follow these instructions to replace the M1008 LED control board.

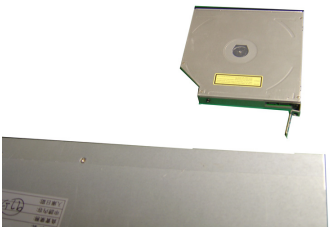
1. Remove the power and data cables from the slim DVD-ROM adapter.



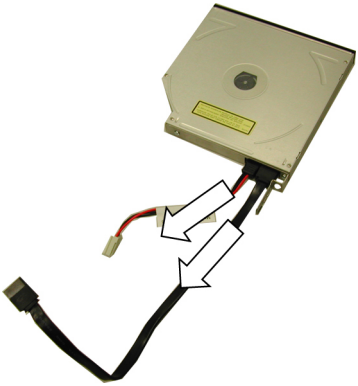
2. Press the tab in the directions as shown to release the DVD-ROM drive.



3. The DVD-ROM drive will be freed from the drive bay after pressing the tab.



4. Disconnect the power and data cables from the DVD-ROM drive.



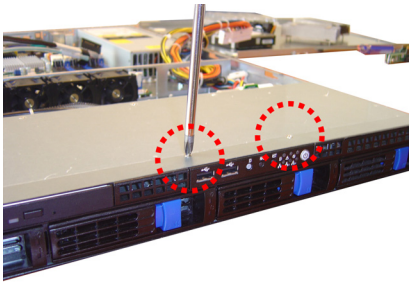
5. Remove two screws that secure DVD-ROM drive to the bracket.

6. Replace the DVD-ROM drive.
7. Secure DVD-ROM to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables.

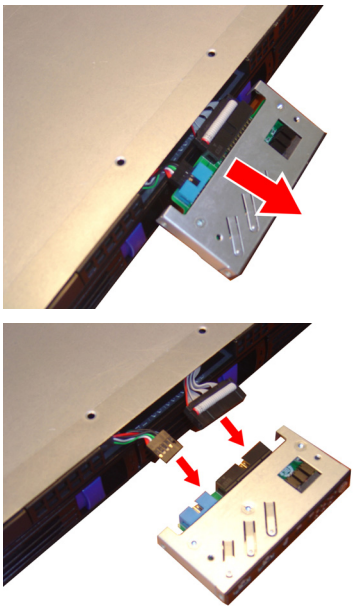
3.6 Replacing the LED Control Board

Follow these instructions to replace the M1008 LED control board.

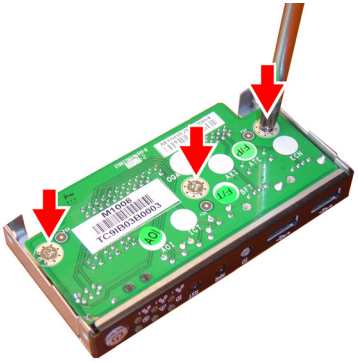
1. Remove the two screws securing the LED control board unit to the chassis.



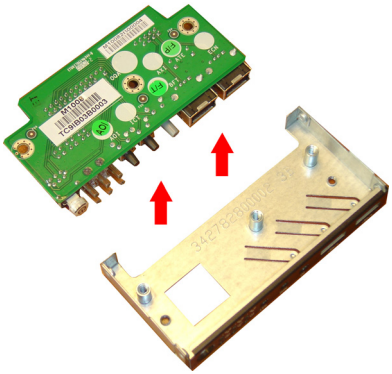
2. Push the LED control board unit out and unplug the cables from the connectors at the back of the unit.



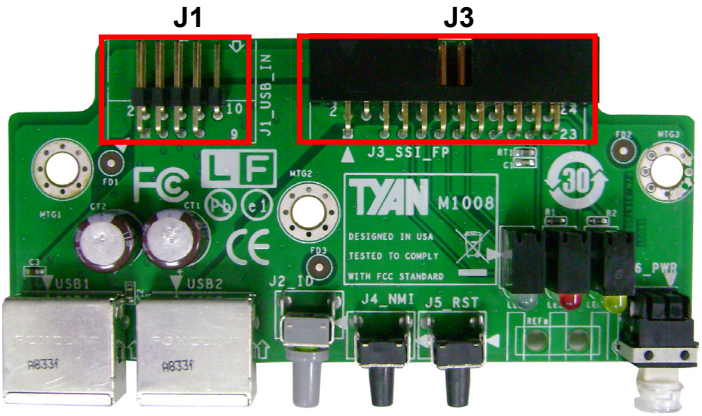
3. Remove three screws securing the LED control board to the bracket.



4. Lift the LED control board free from the chassis. After replacing the LED control board, insert the unit into the chassis following the above procedures in reverse.



3.6.1 M1008 LED Control Board Features



3.6.2 M1008 LED Control Board Connector Pin Definition

J1: USB Header

Definition	Pin	Pin	Definition
VCC	1	2	VCC
USB1-	3	4	USB2-
USB1+	5	6	USB2+
GND	7	8	GND
Key	9	10	GND

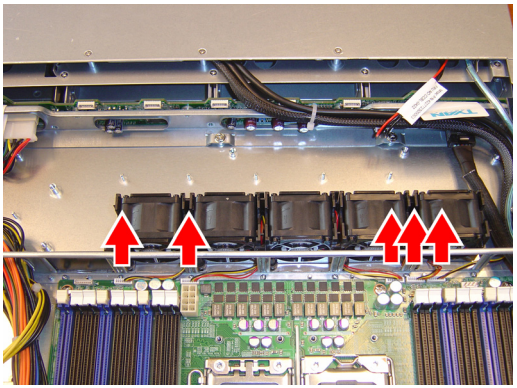
J3: SSI

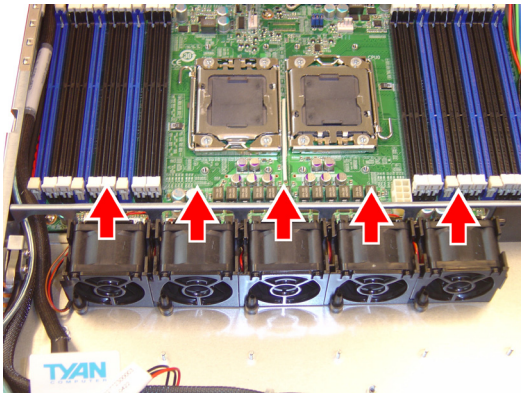
Definition	Pin	Pin	Definition
PW_LED+	1	2	VCC
KEY	3	4	ID_LED+
PW_LED-	5	6	ID_LED-
HD/LAN3 LED+	7	8	SYS_FAULT1-
HD/LAN3 LED-	9	10	SYS_FAULT2-
PWR_SW+	11	12	LAN1_LED+
PWR_SW-	13	14	LAN1_LED-
RESET+	15	16	ICH_SMBDAT
RESET-	17	18	ICH_SMBCLK
ID_SW+	19	20	INTRU#
TEMP_SENSER	21	22	LAN2_LED+
EXT_INT	23	24	LAN2_LED-

3.7 Replacing the System Fan

Follow these instructions to replace the cooling fans in your system.

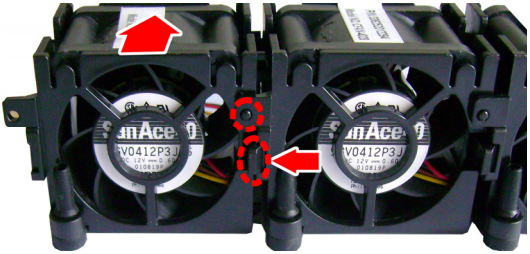
1. Locate the cooling fans in your system.
2. Unplug the cables connected to the mainboard and lift the fan unit up from the chassis.



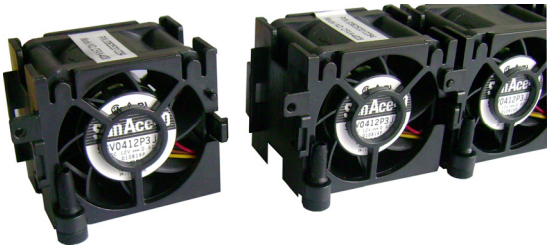


3. Follow Step A and B to unlock the fans. After replacing the new fans, reinstall the fans into the chassis following Step A and B in reverse order.

A

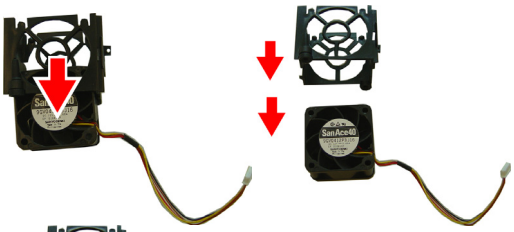


B



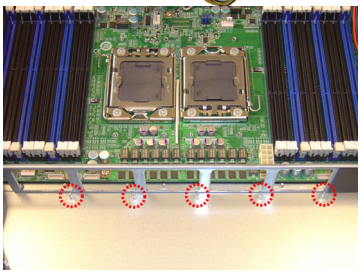
C

1. Push the fan unit away from the case.

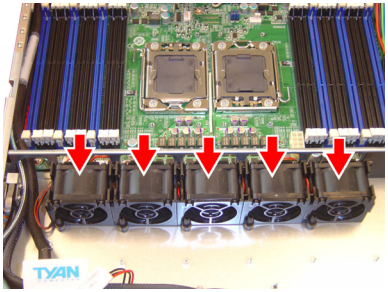


2. After replacing the new fan unit, push the new fan back into the case.

D



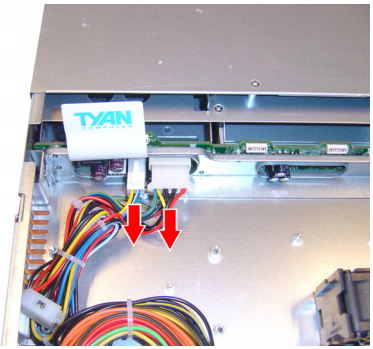
E



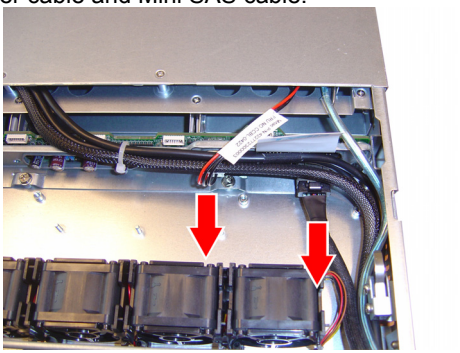
4. Connect the fan cables.

3.8 Replacing the M1232 HDD Board

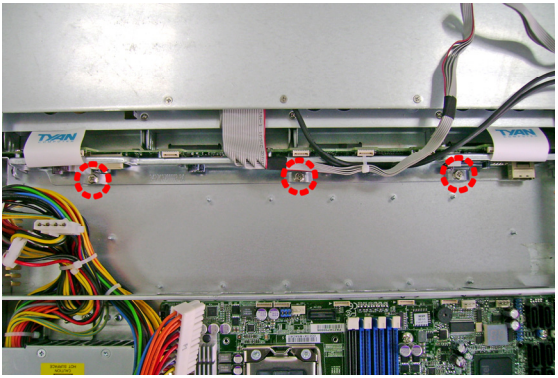
Step 1: Disconnect all cables connected to M1232 HDD Board.
Power cable:



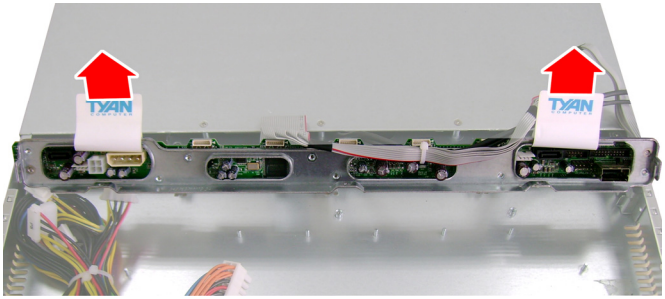
SATA Power cable and Mini SAS cable:



Step 2: Remove the three screws securing the bracket to the chassis base.



Step 3: Lift the bracket up from the chassis.

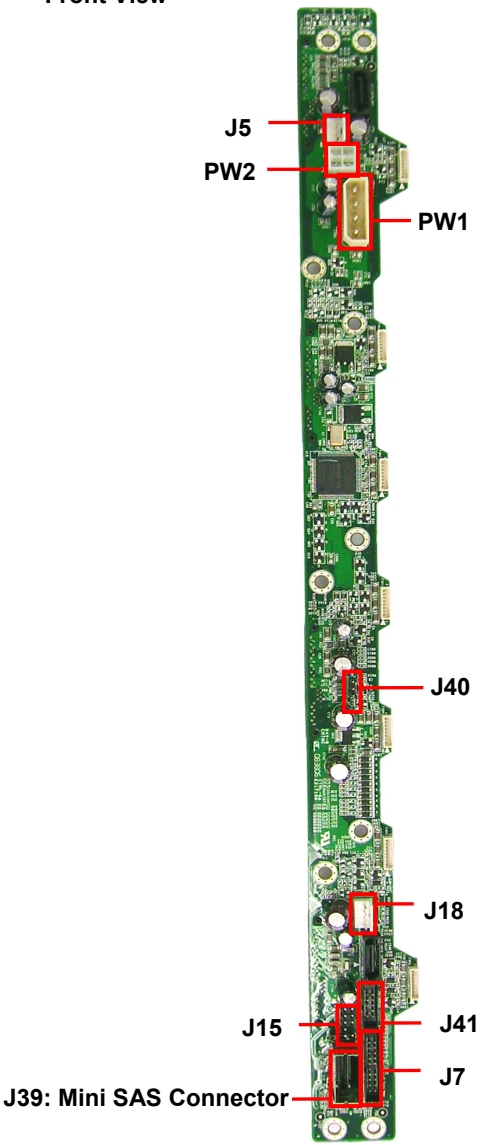


Step 4: Unscrew M1232 board from the bracket.

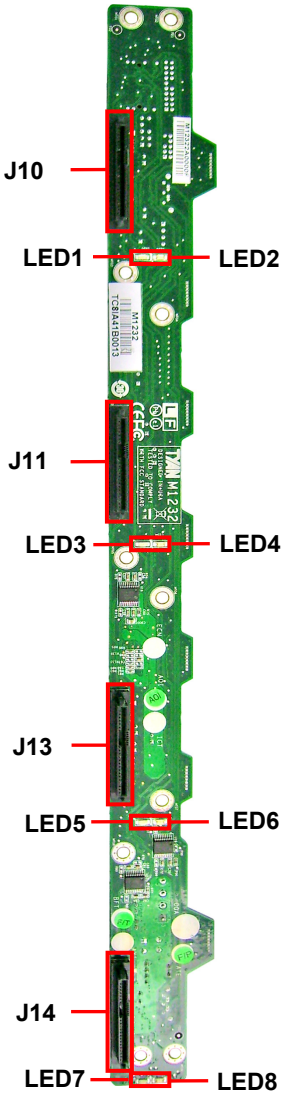
Step 5: Replace a new M1232 HDD Board and reinstall it into the chassis following the above steps in reverse.

3.8.1 M1232 HDD Board Features

Front View



Rear View:



3.8.2 M1232 HDD Board Connector Pin Definitions

PW1

Pin	1	2	3	4
Definition	+12V	GND	GND	+5V

PW2

Definition	Pin	Pin	Definition
GND	1	2	GND
+12V	3	4	+12V

J15 SGPIO JTAG

Definition	Pin	Pin	Definition
TCK	1	2	GND
TDO	3	4	3.3V
TMS	5	6	NI
NI	7	8	KEY
TDI	9	10	GND

J41 SGPIO for IOH

Definition	Pin	Pin	Definition
SM_CLK	1	2	SGPIO_0
SM_DATA	3	4	SGPIO_1
GND	5	6	SGPIO_2
KEY	7	8	SGPIO_3
NI	9	10	HD_ERR_LED

J5 Slim Hard Disk power

Pin	1	2	3	4
Definition	+12V	GND	GND	+5V

J18 Slim CDROM power

Pin	1	2	3	4
Definition	+12V	GND	GND	+5V

J40 PWM select for system FAN3

Pin	Definition
1	CPU_PWM
2	PWM_12(FAN3)
3	CPU_PWM2

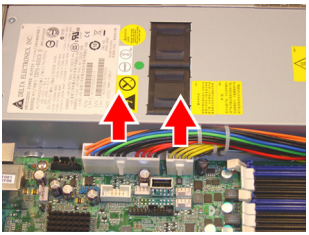
Pin 1-2 chose by CPU_PWM (Default)
Pin 2-3 chose by CPU_PWM2

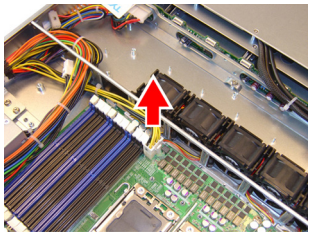
LED Definition:

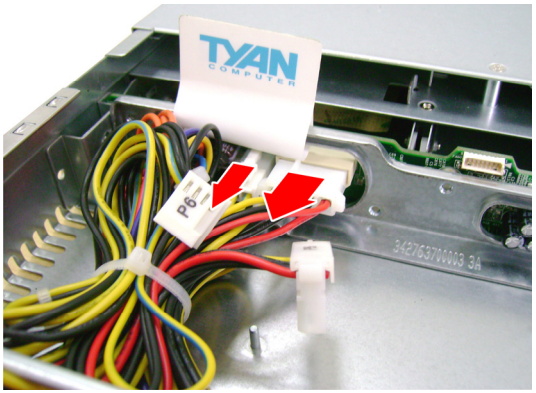
LED	Color	State	Description
HDD fail LED (LED 2/4/6/8)	Amber	On	SATA/SAS HDD fail
		Off	No failure found
HDD Power/Access LED (LED 1/3/5/7)	Green	On	SATA/SAS HDD ready
		Blinking	SATA/SAS HDD access activity
		Off	Power disconnected

3.9 Replacing the Power Supply

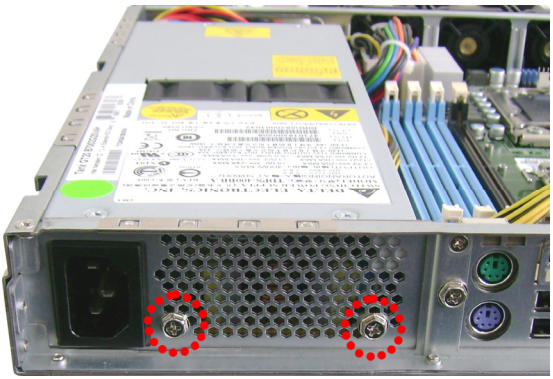
1. Disconnect the power cables from the motherboard and the HDD/FAN board.

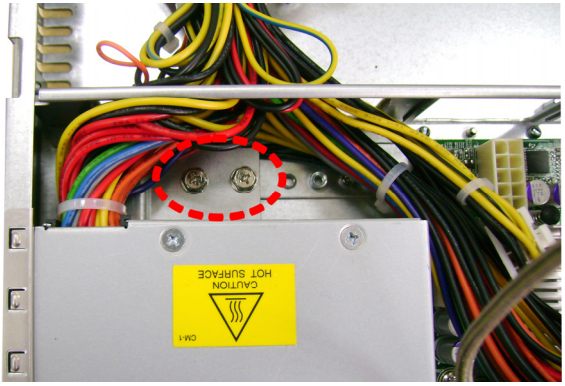






2. Remove the screws that secure the power supply to the chassis.





3. Take out the power unit and install a new one follow the above steps in reverse.

Appendix I: Cable Connection Tables

System Fan to S7016 MB

System Fan	Connect to	S7016 MB
Fan1	→	J54
Fan2	→	J53
Fan3	→	J52
Fan4	→	J51
Fan5	→	J49

M1232 HDD Board to S7016 MB

Cable	M1232	Connect to	S7016 MB
Mini-SAS Cable	J39	→	J13

M1008 LED Control Board to S7016 MB

Cable	M1008	Connect to	S7016 MB
Control Cable	J3	→	J4
USB Cable	J1	→	J11

Power Supply Cables

PSU to S7016 MB

PSU	Connect to	S7016 MB
2X12 PWR	→	PW1
P2	→	PW2
P8	→	PW3

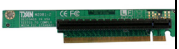
PSU to M1232

PSU	Connect to	M1232
P3	→	PW2
P4	→	PW1

DVD-ROM to S7016 MB & M1232

Cable	Connect to	S7016 & M1232
SATA Cable	→	S7016 MB J26
Slim DVD SATA PWR Cable	→	M1232 J18

Appendix II: FRU Parts Table

GT24-B7016 FRU Parts					
Item	**Model Number**	**Part Number**	**Picture**	**Quantity**	**Description**
Power Supply	CPSU-0262	471015200217		1	600W single Power Supply
FAN	CFAN-0241	336252012294		5	14700RPM,40*40*28MM
Heatsink & Cooler	CHSK-0380	34378090001		1	GT24-B7016 Heatsink
PCBA	M2081-2	/		1	Riser Card
	M2083-RS	/		1	PCI-E X16 1U Riser Card
Rack Mounting Parts	CRAL-0031	452783400001		1	Slide Rail Kit
	CEAR-0050	340740900010		1	Mounting Ear Kit
Cable Set	CCBL-067O	422784300005		1	Mini SAS Cable, 400mm
	CCBL-0310	332810000280		1	A/C Power Cord, L=1830mm,US type
	CCBL-0300	332810000281		1	A/C Power Cord, L=1830mm,EU type

NOTE

Appendix III: Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequence).

If these options are not available for you then MiTAC International Corporation can help. Besides designing innovative and quality products for over a decade, MiTAC has continuously offered customers service beyond their expectations. TYAN's website (http://www.tyan.com) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find their latest software and operating system components to keep their systems running as powerful and productive as possible. MiTAC also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, MiTAC serves multiple market segments with the industry's most competitive services to support them.

Please feel free to contact us directly for this service at tech-support@tyan.com

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN's website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com
3. Contact your dealer for help before calling TYAN.
4. Check the TYAN user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

Note:

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufa--cturer for a Return Merchandise Authorization (RMA) nu--mber. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid.
TYAN will pay to have the board shipped back to you.

TYAN® GT24-B7016 Service Engineer's Manual V1.01a

Document No.: D2005-100